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FAA-04-18024-4

-8040.1  
Appendix 4

Revised July 17, 1995

## Aircraft Certification Service AD PROPOSAL WORKSHEET

DOCKET NUMBER:

03-NE-39

TECH WRITER:

PROPOSED ACTION:

- ☐ Telegraphic AD
- ☐ Priority Letter
- ☒ Immediately Adopted AD
- ☐ Federal Register version of Telegraphic AD or Priority Letter
- ☐ Final Rule after NPRM (\*See Note on next page)
- ☐ Notice of Proposed Rulemaking
- ☐ Other

Is this proposed action one of the following? (Check if applicable):

☐ Supersedure of an AD ☐ Revision of an AD ☐ Supplemental  
NPRM

1. Product Manufacturer.

Rolls-Royce (1971) Limited, Bristol Engine Division

2. Applies to (models, serial numbers or references, installations, part numbers, as applicable).

Rolls-Royce Limited Viper Mk.601-22 Turbojet Engine installed on but not limited to Raytheon HS.125 Series 600 and the BH.125 Series 600 Aircraft.



3. ACO project engineer.

Name/Title/Branch: Ian Dargin/ Aerospace Engineer/ANE-142

Telephone: 781-238-7178

Fax: 781-238-7199

4. Directorate Project Officer (if applicable) and title.

Name/Title/Branch: Marc Bouthillier/ Aerospace engineer/ANE-110

Telephone: 781-238-7120

Fax: 781-238-7199

5. If this action is a Final Rule after NPRM, list the docket number and the number of public comments received. **Fill out the "AD Proposal Worksheet Attachment: Disposition of Comments."**

Docket No.:

Number of comments received:

***\*NOTE: For Final Rules after NPRM, if any of the following requested information (in Questions 6 through 23) is unchanged from the NPRM, you may so indicate this in the space provided, rather than repeat the information.)***

6a. Describe the **unsafe condition**.

To prevent possible dual engine shutdowns due to multiple 1<sup>st</sup> Stage Turbine Rotor Blade losses.

6b. Describe the **cause** of the unsafe condition.

Inspection of 1<sup>st</sup> stage turbine blades from field returned engines identified cracks in the blade airfoil, at an increasing incident rate. Under the current requirements of blade replacement at 7,000 hours, the current risk of dual engine shutdowns is unacceptable. Reducing the first stage turbine lives from 7,000 to 4,600 hours reduces the risk of failure to an acceptable level.

6d. How many such occurrences have been reported?

Unknown



6e. On what date did the FAA become aware of the situation?

January, 2001

7. Was this proposed action prompted by a manufacturer's quality control (QC) problem? If so, is a reporting requirement needed in the AD to determine the scope of the problem? *(If yes to either of these questions, coordinate with cognizant MIDO.)*

No

8. Was this proposed action prompted by the use of suspected unapproved parts (SUP)?

No

9. Is this action related to an NTSB safety recommendation? If yes, attach a copy of that recommendation and the FAA response.

No

10. If this proposed action will revise, supersede, or withdraw an existing AD, please provide the following information about the existing AD.

Amendment No.: N/A

Docket No.:

Federal Register Citation:



11a. ■ What are the proposed types of corrective actions (i.e., one-time inspections, recurring inspections, terminating actions, modifications, operational restrictions, etc.) **AND**

■ What are the corresponding compliance times?

(See attached "**SAMPLE: Proposed Corrective Action**" for an example of how this information should be provided.)

■ Have you considered all of the aspects of what you are proposing, such as overlapping requirements, the effect these actions will have on other existing requirements, and other sensitive issues? (Be as specific as possible.)

[Note to Word users: The area below is formatted as a "Table." It allows you to insert as much information as needed into each cell. To move to the next cell, use the Tab key.]

#### PROPOSED CORRECTIVE ACTION

SERVICE INFORMATION (Attach 2 copies)	ACTION	INITIAL COMPLIANCE THRESHOLD	REPETITIVE INTERVAL (if any)	TERMINATING ACTION (if any)
Rolls-Royce plc Alert Service Bulletin 72-A184, dated January 2001	Remove blades per the attached	See attached	Not applicable	Yes

11b. How was the compliance time(s) established?

Compliance action was determined from risk analysis, based on 1<sup>st</sup> stage turbine rotor blade failure rates. This analysis resulted in the reduction of the life limit of these parts from 7,000 hours to 4,600 hours. Failure of these parts results in an in-flight shutdown of the engine.



11c. Has the manufacturer issued relevant service information? If so, attach 2 copies. *(Copies must be legible and of very good quality. Originals are preferred.)*

Yes. Rolls-Royce plc Alert Service Bulletin 72-A184, dated January, 2001

11d. If this action relates to a non-U.S. product, has the foreign civil airworthiness authority (FCAA) issued a parallel AD ? If yes, please provide the following information:

**FCAA AD Number:** CAA AD 004-01-2001

**Date of issuance:** January 2001

11e. Are there any differences between the manufacturer's service information referenced above, other AD's (foreign or U.S.), and the requirements of this AD? (For example, does the compliance time of this AD action differ significantly from that recommended in the referenced service information?) If so, explain these differences and the reasons for each.

No

11f. Are notes, drawings, or diagrams needed in the AD to explain procedures or differences from the service instructions? *(If so, please explain below or attach a copy.)*

No

12. Number of aircraft engines/products that will be affected? *(Use numerical figures).*

\_\_\_84\_\_\_ Domestic only

\_\_\_84+\_\_\_ Worldwide (including domestic)

13. Provide the number of work hours/associated costs per aircraft/product for **EACH** proposed corrective action (i.e., inspection, modification, etc.) in the table below.

**FOR THE PROPOSED AD.**

Type of Corrective Action	Number of Workhours per aircraft	Number of U.S. Aircraft Affected	Parts Costs per aircraft
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Replace blades	0 hours when done at overhaul	84	\$2287.50 per blade
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On the basis of an estimated 84 domestic engines affected by this AD, the projected cost for replacing one blade per engine is 84 engines x \$2287.50 per blade per engine = \$192,150.00

Note 1: This assumes that 100% of the costs would be paid by the operator and does not include a reduction factor for used life.

FOR THE **EXISTING** AD (i.e., the one to be superseded or revised), if applicable.

Type of Corrective Action	Number of Workhours per aircraft	Number of U.S. Aircraft Affected	Parts Costs per aircraft
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14. If parts are **required**, are they available for all aircraft?

Yes

15. If known, please indicate the number of affected aircraft that are already in compliance with the proposed inspection, modification, installation, or replacement, etc.

Unknown

16. Should a special flight permit be:

☒ Permitted

☐ Permitted with limitations (*List the limitations on a separate sheet.*)

☐ Prohibited



17. In general, how is the product utilized (i.e., air carrier, general aviation, commuter, military, agri-business, training, etc.)?

Commuter

18a. If this proposed AD would revise or supersede an existing AD, have alternative methods of compliance (AMOC) been approved for the existing AD?

N/A

18b. If yes, should those AMOC's continue to be considered approved for all or any portion of the proposed AD?

N/A

18c. If yes, state for what portions of the proposed AD the previously approved AMOC's should continue to be considered approved.

N/A

19. With whom outside the FAA has this proposal been discussed (i.e., ATA, NBAA, RAA, AOPA, ALPA, GAMA, etc.)? *(A separate record may need to be submitted to the Rules Docket. See paragraph 3, "Ex parte Contacts," of the AD Manual.)*



<b>NOTE: This item should be completed prior to submission of the AD Proposal Worksheet.</b>			
Organization	Person Contacted	Date	Reaction
Regional Airline Association	David Lotterer 202-367-1252	July 31, 2003	Concur
National Air Transportation Association	Jacque Rosser 800-808-6282	August 5, 2002	Concur – will pass to Karl Florian

20. Are there any special considerations or concerns that need to be taken into account in the drafting of this proposal? *(Use a separate sheet to detail these items, if necessary.)*

No

21. Do you have reason to believe that this action would be considered "sensitive?" *(See Section 15 of the AD Manual for a definition of "sensitive".)* If yes, please explain below.

No



22. Please indicate **Yes** or **No** to the following questions:

- No Is this considered interim action?
- No Do you know of any optional or alternative methods of accomplishing the proposed action?
- Yes Have you considered any alternatives to an AD action?
- No Are other Directorates involved in any similar actions?
- No Does this action affect the Presidential fleet?
- No Does this action affect the FAA fleet?
- No Have the proposed procedures been verified (i.e., by MIDO, AEG, ACDO, FSDO)?

23. Check the category that best describes **the cause of the unsafe condition** addressed by this AD:

- X Design Problem        Quality Control Problem
- Operational        Maintenance        Unapproved Parts
- Other (specify):



**Signature Section**  
**(Signature indicates concurrence with proposed action)**

<i>John F. (Jan) Dargin</i>	7/27/2003
Project Engineer	Date
<i>Robert E. Guyotte</i>	8/8/03
Branch Manager	Date
<i>Robert E. Guyotte</i>	8/8/03
ACO/Staff Office Manager	Date
<i>Roger H. Love</i>	8/1/03
AEG Representative	Date
N/A	
MIDO Representative*	Date

*(MIDO signature required if QC problem involved.)*

\*Enforcement action status? \_\_\_\_\_



## Compliance Section

**Applicability:** Rolls-Royce Limited Viper Mk.601-22 Turbojet Engine installed on but not limited to Raytheon HS.125 Series 600 and BS.125 Series 600 Aircraft.

Note 1: Required as indicated, unless accomplished previously.

To prevent possible **dual engine shutdowns due to multiple 1<sup>st</sup> Stage Turbine Rotor Blade losses:**

Replace the 1<sup>st</sup> stage turbine rotor blades, after the effective date of this AD as specified in Table 1, Table 2 or Table 3, as applicable.

**Table 1: Installed Engines**

<b>If:</b>	<b>Then:</b>
Both engines installed on the aircraft have 1 <sup>st</sup> stage blade lives in excess of 5,800 hours	Remove the engine with the higher blade life within 6 weeks or 50 flight hours, whichever occurs first
One engine installed on the aircraft with 1 <sup>st</sup> stage blade lives in excess of 5,800 hours and the other engine has blade lives in excess of 4,600 hours	Remove the engine with the higher blade life within 4 months or 100 flight hours, whichever occurs first
One engine installed on the aircraft with 1 <sup>st</sup> stage blade lives in excess of 5,800 hours and the other engine has blade lives less than 4,600 hours	Remove the engine with the higher blade life within 6 months or 200 flight hours, whichever occurs first
All blades when they reach 5,800 hours are subject to the above requirements	Remove within 6 months of the effective date of this AD
All blades when they reach 4,600 hours are subject to the above requirements	Remove within 5 years of the effective date of this AD

12000 FH



**Table 2: Uninstalled Serviceable Spare Engines**

<b>If:</b>	<b>Then:</b>
1 <sup>st</sup> Stage blade life is at or above 5,800 hours	Do not install
1 <sup>st</sup> Stage blade life is between 4,600 and 5,600 hours	Install per Table 1
1 <sup>st</sup> Stage blade life is less than 4,600 hours	Install but follow Table 1 guidance after reaching 4,600 hours.

**Table 3: Engines Undergoing Repair and Overhaul**

<b>If:</b>	<b>Then:</b>
Installed during overhaul	Blade life must not exceed 4,600 hours prior to the engine reaching its approved overhaul life (No action required by operator).

Note 1. Required as indicated, unless accomplished previously.

Note 2. Accomplish within the following cycles since new and subsequently repeated at intervals not exceeding the values listed in Table 1.

Note 3. Calendar time or flying hours quoted in 'D1 – Installed Engines' compliance statements begin from receipt of this ALERT Service Bulletin and not on installation.